

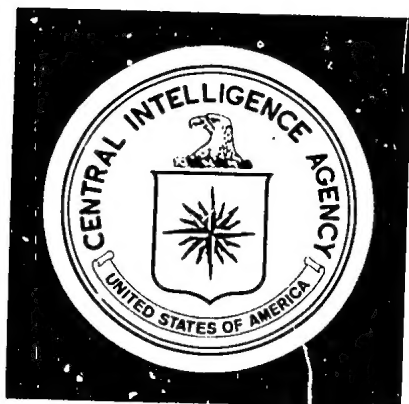
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# Weekly Surveyor

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WEEKLY SURVEYOR

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USSR AND EASTERN EUROPE

The Soviets are building plated wire memories suited for missile and aircraft computers.

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CHINA

In the immediate future, Chinese programs in the Plasma Physics Division of the Peking Physics Institute will concentrate on the development of diagnostic instrumentation for use in plasma physics and fusion research.

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The Chinese have designed a neutron flux detector for operation at fast reactor temperatures

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Cholera has now reached epidemic proportions in Cambodia. Cholera, starvation and malaria may produce more than one million deaths unless massive outside aid is accepted.

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# LATIN AMERICA

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A small uranium enrichment plant to be built for Brazil will provide the first practical demonstration of the West German nozzle enrichment process. Expected simplifications probably will force this plant to operate inefficiently, but an assessment of the feasibility of a large commercial nozzle plant should be possible.

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# MISCELLANEOUS

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Luxembourg has signed a letter of interest for a West German consortium to construct a 1,300 MWe nuclear power reactor at Remerschen. This reactor will be the first nuclear facility in Luxembourg.

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NUCLEAR ENERGY

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Future Chinese CTR Programs Are Concentrated on Developing Diagnostic Instrumentation: Programs in the Plasma Physics Division, Peking Physics Institute, will concentrate, in the immediate future, on developing diagnostic instrumentation for use in fusion research.

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Comment: This is consistent with previous information indicating that the future of Chinese plasma physics and controlled thermonuclear research (CTR) depends on acquiring advanced diagnostic instruments. The Chinese have numerous basic plasma diagnostic instruments which are Chinese-made, but patterned on foreign designs.

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[Redacted]

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PRC May Intend to Conduct Fast Reactor Related Tests:  
China has produced and tested successfully a pulse-type fission chamber designed to operate at 650° C. Designated the GML-20, the chamber was tested in a reactor at neutron fluxes of up to about  $1 \times 10^7$  neutrons/cm<sup>2</sup>-s.

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[Redacted]

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[Redacted]

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Luxembourg Is Acquiring a West German Nuclear Power Reactor: A West German consortium has received a letter of intent for the construction of a 1,300-MWe pressurized water reactor station at Remerschen, Luxembourg. The station was planned by Societe Luxembourgeoise d'Energie Nucleaire S. A. (SENU), a 50-50 Subsidiary of the Luxembourg government and the West German RWE (Rheinisch-Westfaelisches Elektrizitaetswerk). Brown Boveri & Cie AG which heads the consortium will supply the conventional part of the plant; Babcock-Brown Boveri Reaktor GmbH will supply the nuclear system, and Hochtief AG will be the engineer-constructor.

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Comment: This reactor will be the first nuclear facility in Luxembourg. Thus far, nuclear activities in Luxembourg have been limited to the fabrication of some reactor components and peripheral equipment for other countries such as fuel handling machines for Germany and Belgium, shielding for storage and shipping containers, and irradiation capsules for research reactors.

The Luxembourg budget for 1974 contained the authorization and funds for the establishment of SENU and implemented the agreement concluded in July 1973 between Luxembourg and RWE. The agreement called for a feasibility study of the joint construction of a nuclear power station on the Luxembourg-German border at Remerschen, on the Moselle River. The company would be responsible for constructing the station if the studies were favorable. The station would be connected to the RWE transmission network, but Luxembourg power needs would be given priority.

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[REDACTED]

Brazilian Demonstration Enrichment Plant Probably Will Be Very Inefficient: In press coverage of the 27 June Brazilian-FRG nuclear agreement, a Brazilian source reported that the enrichment plant to be built in Brazil would have an annual capacity of 250 metric tons of separative work. [REDACTED]

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Comment: The main purpose of the small enrichment plant will be to assess the feasibility of using the Becker nozzle enrichment process in a large commercial plant. The demonstration plant will not be able to produce uranium suitable for nuclear explosives, it will produce uranium suitable for reactor fuel but probably very inefficiently.

In a demonstration plant of this small size, it is expected that a minimum of enriching units (stages) will be used and that all will be of one size. Consequently, the plant should make very inefficient use of the Becker nozzle enrichment process; the efficiency of the demonstration plant may be only half that anticipated for a commercial plant. Other short-cuts and simplifications probably will be made also to reduce the cost of the demonstration plant further. Thus, production of enriched uranium in this plant is expected to require unusually large amounts of electrical energy. Evaluation of the feasibility of the enrichment process should not be hindered by these short-cuts.

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Disease and Famine Could Cause More Than One Million Deaths in Cambodia: Some Thai relief officials and Western diplomats have estimated that more than one million Cambodians may die of starvation or hunger-related diseases in the next 18 months. Cholera has reached epidemic proportions and transportation has been halted because of fuel shortages. Rice is in very short supply, and many rice fields remain unplanted.

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Comment: This is the first report to state that cholera is now epidemic in Cambodia although the disease has been reported to be present in at least 11 provinces. While starvation can be expected to produce many deaths, the two main causes of death in the short-term will be cholera and malaria. Neither of these diseases is directly hunger-related.

The total effect of disease and famine under present chaotic conditions in Cambodia could well produce one million or more deaths. Cholera alone, if untreated, could produce mortality on the order of 20 to 30 percent. Falciparum malaria, the most common form of the disease in Cambodia which produces the highest mortality, has been reported to produce 2 to 10 percent mortality among untreated persons in tropical areas.

To date, the Cambodians have refused outside aid and transportation has all but halted due to fuel shortages.

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Outside medical aid could not be distributed adequately even if it were brought in. A current lack of sufficient rain may serve to prolong the cholera epidemic, which may in turn endanger Thailand and South Vietnam.

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Soviets Describe Plated Wire Memories Suitable for Military Computers: An article by L. A. Grigoryan reveals Soviet development of plated wire storage devices. The article notes that plated wire has not been competitive with other technologies for general computer memory uses in the West but that it has been used for certain military applications such as in missiles. Grigoryan describes a Soviet process for making and testing the plated wire and describes the Soviet MP-2 and MP-64-72 memory matrices that have been developed to provide 128-word and 64-word 72-bit memory matrices, respectively. He also describes Soviet techniques for magnetic "keepers" to prevent interference in the bit positions of their matrices. An extensive reference list is provided.

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